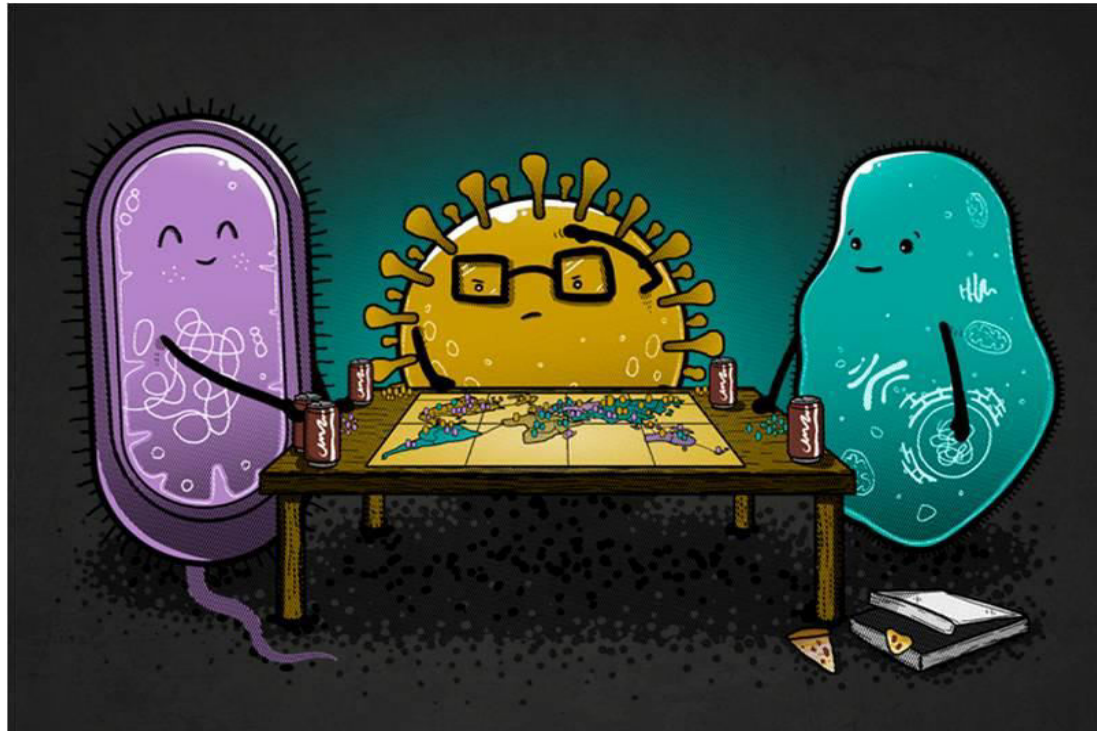


Introduction to Diagnostic Microbiology



Diagnosis Microbiology:

It is used to isolate and identify the organisms, then test their antibiotics sensitivity.

Types of Specimens in Microbiology Lab

- Urine: collect in sterile universal container
- Stool: collect in sterile wide mouth container
- Fluid (synovial fluid, CSF) collect in universal container
- Sputum
- Genital: swab
- Eyes, ears, throat: by swab
- Skin: by swab
- Tissue: collect in sterile universal container
- Blood: collect in hematology tube (ex: EDTA)

Sample Collection

- Samples require careful collection, without contamination from external sources.
- Sterile container must be used for specimens collection.
- For blood collection the skin should be decontaminated with antiseptic.
- For microbiological culture specimens should be taken before antibiotics treatment to avoid false result.

Sample Collection

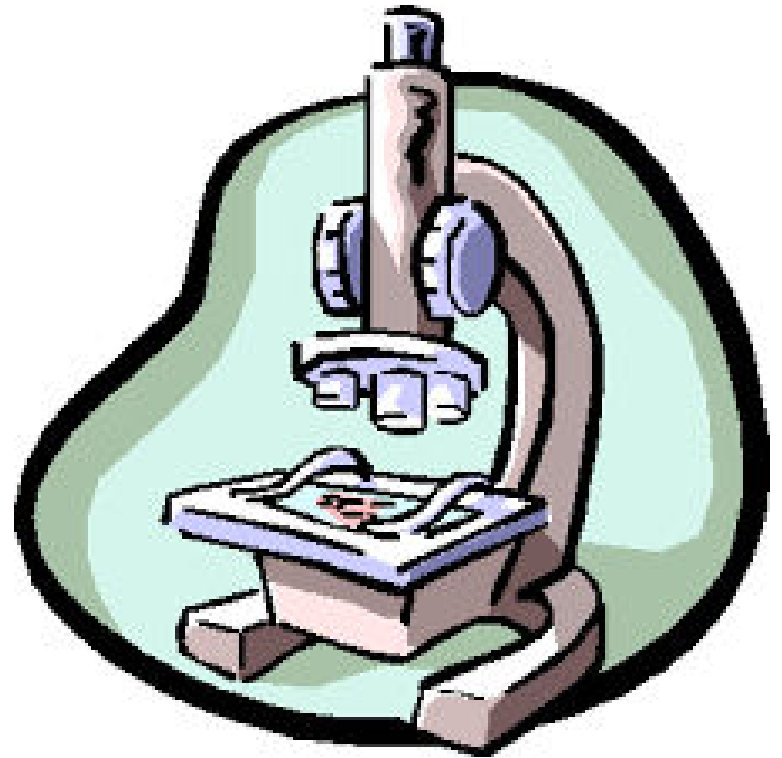
- Specimen should be labeled with:
 - Patient's information (name, ID number, age, gender)
 - Sample type
 - Time of collection
 - Date of collection

Transport of Samples

- Rapid transport of samples to the lab is essential, many fastidious organisms such as *Neisseria gonorrhoeae* and *Haemophilus influenzae* may die during transport.
- Use transport media to prevent dryness and contamination
- Put the specimen in refrigerator if we didn't examine it immediately, to prevent over growth of organisms.

Microscope

- It is an instrument used to see objects that are too small for the naked eye



Types of Microscopes

A. Light Microscope

- 1) Bright field microscope (light microscope)
- 2) Dark field microscope
- 3) Phase contrast microscope
- 4) Inverted microscope
- 5) Dissecting microscope

Types of Microscopes

B. Non-light Microscope

- 1) Fluorescent microscope
- 2) Electron microscope

Microscopic Examination

Usually 2 slides are prepared for microscopic examination:

1. Slide for wet mount preparation (usually we do it before culture the organisms)
2. Slide for fixed smear preparation which stain later with proper stain (usually we do it after culture the organisms)

Fixed smear preparation

- **If we have fluid specimen:**

- 1 drop of specimen on the slid
- Fix the slid on the slid wormer (hot plate) for 3-5 min, then stain it.

- **If we have solid specimen:**

- 1 drop of specimen + 1 drop slain >>> do grinding, then put 1 drop on the slid
- Fix the slid on the slid wormer (hot plate) for 3-5 min, then stain it.

Stains

There are different types of stains:

- Gram stain
- Ziehl Neelsen stain
- Malachite green
- Nigrosin stain.